

PATENT
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Girish T. Dalal et al.

CUSTOMER NO: 37535

Serial No.: 10/722,623

Docket No.: 201TR032

Filed: November 26, 2003

Group Art Unit: 1712

Examiner: Kuo Liang Peng

For: CPVC COMPOSITIONS HAVING GOOD IMPACT STRENGTH AND HEAT STABILITY, AND SMOOTH SURFACES

DECLARATION OF ARTHUR L. BACKMAN UNDER 37 C.F.R. 1.132

I, Arthur L. Backman, hereby declare:

1. That I am employed by Lubrizol Advanced Materials, Inc. as a scientist in the CPVC Research and Development group.
2. That I have a B.S. degree in Chemical Engineering with a minor in Polymers and Colloidal Chemistry from Carnegie Mellon University and a M.S. and PhD in Chemical Engineering from University of Illinois at Urbana, IL.
3. That after receiving my PhD in 1989, I joined The B.F. Goodrich Company to work as a scientist in their CPVC R&D group. That for my entire professional career, I have worked for the largest CPVC company in the world.
4. That I have 19 years of experience working in the processing, compounding, and formulation of chlorinated polyvinyl chloride.
5. That under my direction, the technicians in my group evaluated zeolites with different mean particle diameter in a commercial CPVC extrusion grade formulation (TempRite® 3107 from Lubrizol Advanced Materials, Inc.). The zeolites used were a zeolite 4A. The zeolites were dried at 450°C for 24 hours before being mixed with the CPVC compound. The level of zeolite used was 2.0 parts by weight per 100 parts by weight of CPVC compound.
6. That the formulations for the experiments consisted of a control with no zeolite, a zeolite having a mean particle diameter of 0.4 μm , and a zeolite having a mean particle diameter of 2.5 μm . All other ingredients and their levels in the formulations tested were the same, with only the mean particle diameter of the zeolite being different. The test results

and formulations are shown in the table below. The ingredient levels are shown in parts by weight per 100 parts by weight of CPVC compound.

<u>Ingredient</u>	<u>Control</u>	<u>1</u>	<u>2</u>
CPVC compound level	100	100	100
Zeolite level	0	2	2
Zeolite particle diameter (μm)	--	0.4	2.5
Notched Izod (ft.lb.in) Impact	6.9 ± 0.9	7.4 ± 0.5	2.1 ± 0.1
DTS (% increase of control)	--	55%	66%

7. That the data in the table shows that a CPVC compound with a zeolite having a mean particle diameter of $2.5 \mu\text{m}$ has only about 28% of the impact strength as the same CPVC compound with the same level (2 parts by weight) of zeolite having a mean particle size of $0.4 \mu\text{m}$. Both zeolites (the $0.4 \mu\text{m}$ particle diameter and the $2.5 \mu\text{m}$ particle diameter) increase the DTS (heat stability) of the compound, but the larger particle diameter zeolite gives unsatisfactory impact strength.

I further declare that all statements made herein of my knowledge are true; that these statements are made with the knowledge that willful, false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing on this application.

Dated: April 10, 2008

Signed: Arthur L. Backman
Arthur L. Backman